REMARKS

Claims 1 and 17 are amended. Claims 1-18, as amended, remain in the application. Claims 13 and 14 are withdrawn as being drawn to a nonelected species.

The Rejections:

In the Office Action dated March 13, 2007, the Examiner rejected Claims 1-3, 5-8, 12 and 15 under 35 U.S.C. 102(b) as being anticipated by Fromberg (5,224,570).

Regarding Claims 1-3, the Examiner stated that Fromberg discloses a safety device comprising:

- Retaining element (3),
- An abutment (7) spaced from and fixed relative to said retaining element,
- A braking element (11) movably positioned between said retaining element and said abutment and spaced a distance from said retaining element to accept a portion (4) of a guide rail (5),
- Said braking element having a rest position spaced from the surface of said guide rail,
- A lever mechanism (20, 1, Fig. 1) connected to said braking element for moving said braking element from said rest position to a braking readiness position contacting the surface of said guide rail (at surface 13), whereby downward movement of movement of the elevator causes said braking element to be squeezed between the guide surface and said abutment,
- an operating mechanism (Col. 4, Line 59 and Col. 5, Line 13) connected to said lever mechanism for selectively moving said braking element between said rest and readiness positions (Col. 5, Line 5), when the elevator car is in an operating state below over-speed ("malfunction", Col. 4, Line 56).
- said braking element is a blocking roller,
- said abutment is angled relative to said retaining element whereby an interspace (2) narrows between said retaining element and said abutment opposite a predetermined direction of motion of the elevator car.

Regarding Claims 5-8, the Examiner stated that Fromberg discloses a safety device comprising:

- a guide (9) along which the position of said braking element is changeable,

- said guide forms an oblong recess,
- said guide is shaped to hold said braking element in said rest position,
- said operating mechanism which applies a force to his braking element for bringing said braking element into contact with said guide surface and keeping said braking element in a state of equilibrium whereby said braking element is moved automatically relative to said abutment and opposite to the direction of motion of the elevator car.

Regarding Claim 12, the Examiner stated that Fromberg discloses his guide surface (one side of portion 4) is one guide surface of his guide rail (5) and said retaining element (3) is a first guiding element for guiding the elevator car alongside another guide surface (opposite side of portion 4) of the guide rail.

Regarding Claim 15, the Examiner stated that Fromberg discloses safety device having a U-shaped configuration.

The Examiner rejected Claims 4, 9-11 and 16-18 under 35 U.S.C. 103(b) as being unpatentable in view of Fromberg over Rebillard et al (US 6,173,813).

Regarding Claim 4, the Examiner commented that Fromberg does not disclose his lever mechanism swiveling about an axle, his lever mechanism being ultimately linked to a non-depicted governor or speed limiter (Col. 4, Line 59). According to the Examiner, Rebillard teach their lever mechanism (94) connected to their braking element (96) of roller form, whereby their lever mechanism swivels around an axle (100) in response to an electromechanical actuator in lieu of the non-depicted mechanical means of Fromberg, and it would have been obvious to one of ordinary skill in the art to modify the invention of Fromberg with the teaching of Rebillard to provide electromechanical actuation of the braking means for the benefit of integrating an emergency brake in a electronic control systems whereby sensors and/or set parameters can affect braking.

Regarding Claims 9-11, the Examiner stated that Fromberg discloses his operating mechanism as a mechanical device. The Examiner further stated that Rebillard teach their operating mechanism having a solenoid (20) that "...exerts magnetic force... on said braking linkage..." (Col. 1, Line 58) whereby said braking element is maintained in said rest position. Furthermore, according to the Examiner, if the solenoid is deactivated, thereby extinguishing the

electromagnetic force, their bolt (86) to which their lever mechanism (94) is pivotally connected, is forced by their pre-loaded spring (88) to move their braking element to a brake readiness position, whereby the braking element automatically proceeds to a full braking position in response to the opposite motion of their elevator car and the fixed position of their inclined abutment, and it would have been obvious to one of ordinary skill in the art to modify the invention of Fromberg with the teaching of Rebillard to provide a fail-safe mode in keeping with conventional, electromechanical control means.

Regarding Claim 16, the Examiner stated that applicant has stated that the brake lining of the instant invention is well known to the automotive industry (Para. 54), and therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize materials common to automotive brake linings.

Regarding Claims 17 and 18, the Examiner stated that Fromberg discloses:

- first leg and second legs (1a and 9), said first leg having a brake lining (3) attached thereto and said second leg spaced from and fixed relative to said first leg,
- a blocking roller (11) movably positioned between said first leg and said second leg and spaced a distance from said first leg to accept a portion of a guide rail therebetween,
- said blocking roller having a brake rest position,
- a lever mechanism (20, 1, Fig. 1) connected to said braking element for moving said braking element from said rest position to a braking readiness position contacting the surface of said guide rail (at surface 13), whereby downward movement of movement of the elevator causes said braking element to be squeezed between the guide surface and said second leg,
- an operating mechanism connected to said lever mechanism for moving said blocking roller between said rest and braking readiness positions, when the elevator car is in an operating state below over-speed;

however, the operating mechanism does not move the braking element selectively.

According to the Examiner, Rebillard teach their operating mechanism (bounded by 71, Fig. 5) for movement of their braking element from the brake rest to readiness positions, in automatic response to either an over-speed or similar condition as well as by selective control, and it would have been obvious to one of ordinary skill in the art to modify the invention of

Fromberg with the teaching of Rebillard to provide an operating mechanism providing either automatic or selective engagement of the braking element, for safety and maintenance purposes.

Regarding Claim 18, the Examiner stated that Fromberg discloses said first and second leg are formed as legs of a U-shaped safety device block (Fig. 2) and an interspace (2) narrows between said second leg and said guide surface opposite the direction of motion of the elevator car.

The Response:

Fromberg shows a brake catching device that precludes the occurrence of excess speeds of an elevator car or counterweight in a downward travel direction. The device includes a brake pad **3**, a fixed projection **7** spaced from the brake pad **3**, a catch roller **11** movably positioned between the brake pad **3** and the projection **7** and spaced a distance from the pad **3** to accept a leg **4** of a guide rail **5**, the catch roller **11** having a rest position spaced from the surface of the guide rail **5** (Fig. 1), an actuation arm **20** connected to the catch roller **11** for moving the catch roller from the rest position to a braking position (dashed line in Fig. 1) contacting the surface of the guide rail **5** (at surface **13**), whereby further downward movement of the elevator causes the catch roller **11** to be squeezed between the guide surface **4** of the guide rail **5** and the projection **7**, a speed limiter or governor (Col. 4, Line 59 and Col. 5, Line 13) connected to a lever mechanism **19** for moving the catch roller **11** between the rest position and the braking position (Col. 5, Line 5), when the elevator car is in an over-speed condition (Col. 4, Lines 56-63; Col. 5, Lines 12-20).

The Examiner made two mischaracterizations of the Fromberg device in the stated basis for the rejection of Claims 1-3. First, the Examiner stated that Fromberg discloses an operating mechanism (Col. 4, Line 59 and Col. 5, Line 13) connected to said lever mechanism for selectively moving said braking element between said rest and readiness positions (Col. 5, Line 5), when the elevator car is in an operating state below over-speed ("malfunction", Col. 4, Line 56). Fromberg does mention a malfunction (Col. 4, Line 56) or an emergency situation (Col. 4, Line 57), i.e. an abnormal operating condition of the elevator or counterweight (Col. 4, Lines 57-58). However, the malfunction or emergency situation is not during an operating state below over-speed. The rest of the sentence (Col. 4, Lines 56-63) states that the lever mechanism 19 is

actuated by a conventional speed limiter or governor. As is known by one of ordinary skill in the art, a conventional speed limiter or governor is triggered only by an over-speed condition and does not trigger below over-speed. Therefore, Fromberg does not include the operating mechanism recited in Applicants' Claims 1 and 17.

Second, the Examiner stated that Fromberg discloses a lever mechanism (**20**, **1**, Fig. 1) connected to said braking element for moving said braking element from said rest position to a braking readiness position contacting the surface of said guide rail (at surface 13), whereby downward movement of movement of the elevator causes said braking element to be squeezed between the guide surface and said abutment. Fromberg element **1** is the housing and does not appear to be part of a "lever mechanism". Fromberg element **20** is an actuation arm that is connected with the lever mechanism **19** at one end **20a** and with the catching roller **11** at an opposite end **20b**. Thus, neither the housing **1** nor the actuation arm **20** function as a lever.

However, even if the Fromberg elements **1**, **20** are considered to be a "lever mechanism", the Fromberg device does not have the recited "braking readiness position". The Fromberg catching roller **11** moves continuously from the rest position to the braking position because the elevator car is moving relative to the rail in an over-speed condition. Applicants amended Claims 1 and 17 to recite that the lever mechanism moves the braking element from the rest position to the braking readiness position when the elevator car is stopped and in response to subsequent downward movement of the elevator car the braking element is squeezed between the guide surface of the guide rail and the abutment.

Fromberg does not disclose a braking readiness position. The Fromberg device has only two states:

- Normal condition (over-speed governor not triggered) with catching roller in rest position.
- Over-speed condition (over-speed governor triggered) which means that automatically a relative movement between traction element and the elevator containing the catching roller is given, and the catching roller is moved direct to its braking position without taking a braking readiness position.

Fromberg doesn't disclose an operating mechanism for selectively moving a braking element between a rest position and a braking readiness position when the elevator car is in an

operating state below over-speed, because Fromberg has only the linkage mechanism which moves the braking element (in a one way direction) from a rest position to a braking position in response to an over-speed condition. Applicants' Claims 1 and 17 recite an operating mechanism connected to the lever mechanism for selectively moving the blocking roller between the rest position and the braking readiness position when the elevator car is in an operating state below over-speed. A resetting of Fromberg requires an investigation by a maintenance person and a manual action. This is different from the claimed invention, because the operating mechanism brings the braking element to the braking readiness position only in operation conditions below over-speed and the operating mechanism brings the braking element back to the rest position if no braking occurs.

Similar to Fromberg, Rebillard shows a safety brake that is actuated by an over-speed condition (and over-acceleration). Rebillard moves a roller **96** into a brake block **70** wedging the roller **96** against the rail **12**. There is no suggestion of a braking readiness position.

In the Response to Arguments section, the Examiner stated that Aulanko et al, as included in the Information Disclosure Statement, and Huang et al (6,082,506) are cited, respectively, for reference of:

- a safety device having rest-, braking readiness- and braking positions and used, for instance, "... to stop the elevator... in a case where an error in operation results in the elevator leaving a door zone with doors open";
- a safety device comprising a retaining element (20), an abutment (10) spaced from and fixed relative to said retaining element, a braking element (43) movably positioned between said retaining element and said abutment and spaced a distance from said retaining element sufficient to accept a portion of a guide rail therebetween, said braking element having a rest position, a lever mechanism (45) that swivels about an axle and connected to said braking element and an operating mechanism (50) connected to said lever mechanism for selectively moving said braking element between a rest position and a brake readiness position when the elevator car is in an operating state below over-speed.

Aulanko (EP 0 841 280 A1) shows a safety gear **1** including a roller **3** operated during an over-speed condition (Col. 4, Lines 42-45). The language quoted by the Examiner refers to a prior art gripper type braking device (Col. 1, Lines 5-27) wherein a wedge or roller is driven

against the guide rail. There is no mention of a braking readiness position when the elevator car is stopped.

Huang showing a braking arrangement 1 including a roller 43 and a receiving piece 20 acting on a suspension cable 4 wherein the roller 43 is in contact with the cable 4 when an elevating work platform 2 is moving upwardly (Col. 5, Lines 9-35). The brake must be manually released to allow the platform to move downwardly (Col 5, Lines 4-8).

None of Rebillard, Aulanko and Huang provides the claimed elements missing from Fromberg.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record, including withdrawn Claims 13 and 14, now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.